Holt McDougal
Larson Algebra 2, Algebra II

Degree of Evidence regarding the Standards for Mathematical Practice:

Minimal Evidence

Summary of evidence:

1. **Make sense of problems and persevere in solving them**. In the chapters reviewed, there are few open-ended problems (e.g. #32, p. 483). The open-ended questions are typically found in the practice problems and are delineated as such. Students are typically directed in how they should solve a particular problem, and then they are asked to replicate the process in the practice problems. There is some evidence of making connections among tables, graphs, equations, and situations. There are some optional "Problem Solving Workshops", but these could be easily skipped. There are some opportunities for students to explain or describe their solutions within the practice problems, but these opportunities are not directly presented as a chance for students to communicate with each other. It would be up to the teacher regarding how it is implemented. The Short Response and Extended Response problems present opportunities for students to explain their reasoning, but the explanation would be written unless otherwise implemented. There is very limited opportunity for students to create a problem-solving plan of their own and to follow through. Motivation for students to discover the concepts on their own is limited. It would be up to the teacher to effectively incorporate the "Investigating Algebra Activities".
2. **Reason abstractly and quantitatively**. There are some application problems ingrained in each section, with some chapters having more application problems than others. Students are rarely asked to create a model for an application aside from the Investigating Algebra Activities, which could be easily skipped. Typically the model a student is asked to create is an equation they have already been shown will work for that particular scenario (e.g. p. 535 #34b). There is not much connection between applications and representations using symbols. Often, symbols just appear in the formulas given to the students. Some of the error analysis problems tackle the concept of reasonableness (e.g. p. 534 #28). Most problems are solved by applying an algorithm that the students have not generalized or formed on their own through the help of a model.
3. **Construct viable arguments and critique the reasoning of others**. In the chapters reviewed, there are limited opportunities for students to explain their reasoning. Problems are mainly focused on arriving at a numerical answer, with the occasional problem requiring an explanation or description. In the chapters reviewed, there is little mention of students sharing their methods with the class (e.g. p. 622), aside from in the teacher resource. Explanations and discussion of justification are very limited in the chapters reviewed. There are some "Critical Thinking" problems included in student practice that the teacher could use to foster student analysis and justification. Overall, there are limited opportunities for students to justify their thinking and when they do exist, they may be skipped due to infrequency or the fact that they are not in the practice exercises. Opportunities will rely on teacher facilitation of the activities and practice problems.
4. **Model with Mathematics**. In the chapters reviewed, students are rarely directed to create a model, unless they are completing one of the investigative labs that are separate from the section lesson. In the application questions, answers are in context. There is some connection among tables, graphs, equations, and situations in the chapters reviewed. Students have an occasional opportunity to work with tables. The applications are more in the form of a closed word problem, with the exception of the occasional open-ended problem in the student practice. There are some opportunities for students to create mathematical models, but these opportunities depend on

teacher implementation and the incorporation of the investigative labs. Students are presented with how the book details they should solve a problem, and then they are tasked with practicing the use of the prescribed algorithm.

5. **Use appropriate tools strategically.** Graphing calculators are incorporated in the text, including separate Graphing Calculator Activities. Students are directed that they "may want to use" a graphing calculator to complete specific practice problems (e.g. p.534 #31). Other tools do not seem to be incorporated in the chapters reviewed, resulting in no opportunity to discuss the strengths and weakness of particular tools based on a specific scenario. Graphing calculators are referenced frequently in the text.
6. **Attend to precision.** Examples use proper notation and are precise. In the chapters reviewed, students are asked to conduct error analysis and to explain misconceptions through interspersed practice problems, but it is presented as a written communication rather than as a chance to talk about the mathematics with others. In the chapters reviewed, examples of precise communication were not present. Students could be given some opportunities to share and discuss their responses through teacher implementation of the investigative labs. The fostering precise communication would rely on teacher facilitation of student activities presented in the teacher resource or in the labs.
7. **Look for and make use of structure**. In the chapters reviewed, there are few opportunities for students to examine examples and then generalize for themselves. Chapter7, for example, follows the prescription of giving students the formula, showing some examples using the formula, and then providing practice problems to complete on their own using the formula. Student generalization would depend on the teacher implementing the investigative labs, which are only provided for a few mathematical concepts. The rule is given, and then worked-out examples follow. The student resource contains few activities for students to explore patterns to create generalizations, and these opportunities are separate from the section's lesson. There is limited to no connection to prior learning. Students are simply given the new rule to apply. There are some opportunities for students to generalize their thoughts in some of the practice problems, but this is primarily only after the text has told them the algorithm or rule without any discovery.
8. **Look for and express regularity in repeated reasoning.** In the chapters reviewed, students are rarely, if ever, asked to look at patterns and generalize on their own. Most of the time, the book shows them the pattern and then provides the formula. There are some activities interspersed in the chapters which guide students to analyze and generalize their findings. Since these activities are not ingrained in the section examples themselves, they could be easily skipped. It would be up to the teacher to take the time to implement these activities, which are few. There are few to no opportunities for students to generalize a pattern to determine a rule. Opportunities to meet this standard would depend on the teacher taking the initiative to incorporate it into the course.